

REPAIR PARTS

FOR

South Bend Lathes

Care of the Lathe

The Back Geared Screw Cutting Lathe is a tool of precision. The skilled mechanic is proud of it. He sees that the lathe is level, that the revolving parts are well oiled and that the lathe is kept clean and neat because he knows that with the proper care the lathe will last a lifetime.

48,000 South Bend Lathes, built in the past 24 years, are in use in the United States and 78 countries throughout the world.

Bulletin No. 19

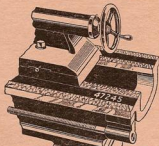
February, 1930

SOUTH BEND LATHE WORKS

419 East Madison St. South Bend, Ind., U. S. A.

Information on Ordering Repair Parts

For South Bend Lathes



Serial Number of Lathe—No. 47245
The Serial Number of Your Lathe is Stamped Between the Ways of Lathe Bed at Tailstock End.

Serial Number of the Lathe

The illustration at left shows the location of the Serial Number on each South Bend Lathe. The Serial Number assists us in securing important information from our factory records for filling your order correctly.

The Serial Number of all South Bend Lathes will be found as shown in the illustration at the left; that is, stamped between the ways of the lathe bed at the tailstock end.

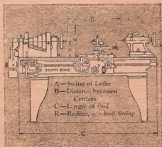
If the Serial Number of your lathe is not specified in your order it will be necessary to write you for this information and that will mean delay.

To Determine Size of Lathe

The size and catalog number of your lathe is shown on a metal plate which is fastened to the gear guard at the end of the lathe. If your lathe does not have this plate give swing over bed and length of bed as shown in illustration at right.

- A represents the swing over bed.
- R represents the radius, one-half of the swing.
- C represents the length of bed.
- B represents the distance between centers when end of tailstock is flush with end of bed.

European tool manufacturers determine the size of a lathe by its radius or center distance; for example, an 8-inch center lathe is a lathe having a radius of 8 inches. What the European terms an 8-inch center lathe, the American calls a 16-inch swing lathe.



To Determine Size of Lathe

The Dimensions in the Above Illustration Show How to Determine Size of Your Lathe.

Prices of Repair Parts

Repair Parts are furnished, to users of South Bend Lathes, on a cost basis. A quotation on any repair part will be gladly furnished on request.

Attachments—A complete line of attachments, chucks and tools which can be fitted to your lathe are illustrated, described and priced in Attachment Bulletin No. 77, a copy of which will be mailed postpaid on request.

The Life of a Lathe

The Life of the South Bend Lathe we estimate is at least twenty-five years if given the proper care and attention. We are still using on production work a South Bend Lathe we built twenty-four years ago.

How to Order Repair Parts

For South Bend Lathes

The best and easiest way to order repair parts is to send the old or broken parts in to the factory with the order. This will eliminate all possibility of error in filling your order and assure prompt shipment of the correct size and type of part.

If it is impossible to return the old or broken part be sure to give the following information when ordering:

1. The Number and Name of the Part wanted.
2. The Size and Type of Lathe on which it is to be used.
3. Serial Number of the Lathe.
4. State how you want the order shipped: by Parcel Post, Express or Freight. All Parcel Post shipments are insured unless we are instructed otherwise.
5. Give your Name, Street Number, or Box Number, City, State, and County, so as to insure prompt delivery of your shipment.

How to Find Number and Name of Repair Parts

The Names and Numbers of Repair Parts listed in this bulletin apply to all size lathes, 9-inch to 18-inch, inclusive. For example: Part Number 4 is the number assigned to the Front Lead Screw Bracket for all size lathes. When you order this part it is necessary to give the size of the lathe to which the part is to be fitted so we can furnish the correct part.

Drawings and Photographs in this Bulletin enable you to quickly determine the number and name of each part wanted. For example: if your part is used in the headstock, turn to pages 2 and 3 where the headstock unit parts are illustrated. The drawings show assembled lathe units and numbers while photographs show

these units disassembled and parts numbered.

Locate the number of the repair part wanted, then specify on your order the name and number of that part, the serial number of the lathe, and the size and type of lathe for which it is intended. With this information we can ship you the proper repair part promptly.

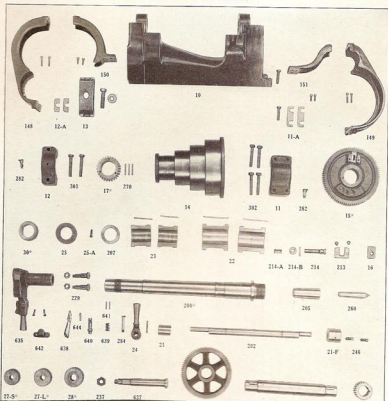
Gears and Threaded Parts. If the repair part wanted is a gear or a screw of any kind be sure to give the required information on page 12.

Motor Drive Repair Parts. Complete information for ordering repair parts for the various motor drive units is given on pages 10 and 11.

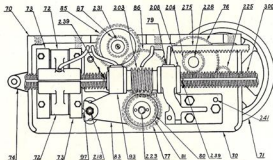
Repair Parts for South Bend Attachments

Repair Parts can be supplied for all Attachments for South Bend Lathes. When ordering such parts it will facilitate the handling of your order if you will send us the old or broken parts or a sketch giving complete dimensions of the part required. This will eliminate mistakes and unnecessary delays in shipping.

Headstock Parts

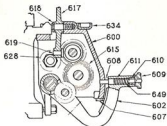
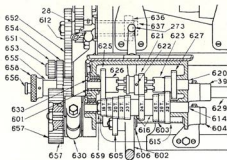


Apron and Saddle Parts



Part No.	Name of Part	Number Required	Part No.	Name of Part	Number Required
58	Saddle Felt Retainer.....	4	89	Hand Wheel Pinion Washer.....	1
59	Saddle Felt.....	4	93	Worm Support Bracket.....	1
60	Saddle.....	1	93C	Gap Worm Support Bracket.....	1
60G	Gap Saddle.....	1	97	Apron Feed Lock Plunger.....	1
61	Saddle Gib.....	1	99	Worm Support Bracket Screw.....	2
62	Saddle Lock.....	1	203*	Apron Worm.....	1
63	Cross Feed Bushing.....	1	204*	Rack Pinion.....	1
64	Cross Feed Graduated Collar.....	1	208	Apron Worm Collar.....	1
65+	Cross Feed Nut.....	1	210	Carriage Lock Collar Screw.....	1
66*	Cross Feed Shoulder Screw.....	1	215	Clutch Sleeve Hexagonal Nut.....	1
68	Gib Screw Spring Washer.....	3	218	Cross Feed Lever Stud.....	1
70	Apron.....	1	220*	Clutch Sleeve Pinion.....	1
70G	Gap Apron.....	1	223*	Apron Clutch Screw.....	1
71	Apron Hand Wheel.....	1	224*	Cross Feed Screw.....	1
72+	Apron Half Nuts.....	1 Pair	225*	Apron Hand Wheel Pinion.....	1
73	Half Nut Gibs.....	2	228	Rack Pinion Stud.....	1
74	Apron Half Nut Cam.....	1	231	Cross Feed Stud.....	2
75	Apron Half Nut Cam Washer.....	1	232	Apron Half Nut Studs.....	1
76*	Rack Pinion Gear.....	1	234	Cross Feed Idler Gear Stud.....	1
77*	Apron Worm Wheel.....	1	235	Cam Cap Screw.....	1
78	Clutch Sleeve Bushing.....	1	238	Apron Worm Wheel Washer.....	1
79	Worm Bracket.....	1	239	Apron Worm Key.....	1
79G	Gap Worm Bracket.....	1	241	Worm Bracket Pin.....	2
80	Clutch Sleeve.....	1	244*	Apron to Saddle Screws.....	4
81	Clutch.....	1	271	Hand Wheel Handle.....	1
82	Clutch Knob.....	1	272	Cam Lever Handle.....	1
83	Cross Feed Lever.....	1	276	Cross Feed Crank.....	1
84	Cross Feed Lever Knob.....	1	288	Hinge Top Oilers.....	6
85*	Cross Feed Gear.....	1	289	Oil Hole Plugs.....	2-4
85G*	Gap Cross Feed Gear.....	1	289-A	Apron Oil Tubes.....	2-4
86*	Cross Feed Idler Gear.....	1	293	Cross Feed Stud Nut.....	1
86G*	Gap Cross Feed Idler Gear.....	1	294	Rack Pinion Stud Nut.....	1
87*	Cross Feed Pinion.....	1	295	Cross Feed Screw Hex. Nut.....	1

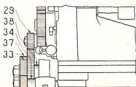
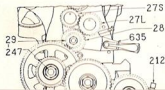
Quick Change Gear Box Parts



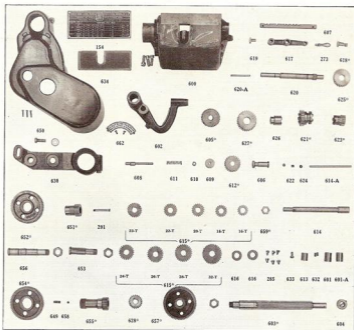
Part No.	Name of Part	Number Required
154	Index Plate	1
273	Top Lever Handle	1
285	Gear Box Oilers	6
291	Gear Box Hub Oiler	1
600	Gear Box	1
601	Gear Box Bushing	2
601-A	Gear Box Bushing	1
602	Gear Box Tumbler	1
603*	Main Drive Pinion and Nut	1
604	Main Drive Pinions Collar	1
605*	Tumbler Idler Gear	1
606	Tumbler Gear Stud	1
607	Guide Bar	1
608	Knob Plunger	1
609	Plunger Knob	1
610	Plunger Spring Bushing	1
611	Plunger Spring	1
612*	Reverse Stud Gear	1
613	Clutch Shaft Bushing	1
614	Cone Gear Shaft	1
614-A	Cone Gear Shaft Key	1
615*	Gear Box Cone Gears	9
616	Cone Gear Spacing Collars	2
617	Top Lever	1
618*	Top Lever Shoulder Screw	1
619	Top Lever Shifting Plug	1
620	Compound Gear Shaft	1

Part No.	Name of Part	Number Required
620-A	Compound Gear Shaft Key	1
621*	Clutch Sliding Gear	1
622	Clutch Sliding Gear Spring	1
623*	Clutch Pinion	1
624	Ball Bearing for Clutch Sliding Gear	1
625*	Clutch Gear	1
626	Clutch	1
627*	Clutch Shaft Gear	1
628*	Lead Screw Gear	1
629	Quick Change Gear Lead Screw	1
630	Primary Gear Bracket	1
632	Bushing Lock Screws	2
633	Bushing Adjusting Screw	2
634	Tray	1
649	Primary Knob Spring	1
650	Primary Gear Guard	1
651*	Primary Pinion	1
652*	Primary Gear	1
653	Primary Gear Stud	1
654*	Primary Sliding Gear	1
655*	Primary Sliding Pinion	1
656*	Sliding Gear Stud	1
657*	Primary Drive Gear	1
658	Primary Knob Ball Bearing	1
659*	Cone Gear Shaft Nut	1
662	Instruction Plate	1

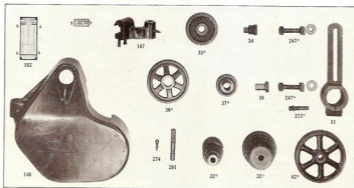
Standard Change Gear Parts



Quick Change Gear Box Parts



Standard Change Gear Parts



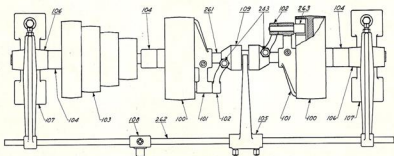
*When Ordering Gears, Threaded Parts and Chuck Backs see page 12 where this subject is explained.
 NOTE: See Preceding Page for a List of All Parts Shown Above.

Lead Screw, Legs, Rack and Lathe Equipment Parts

For illustration of parts listed below see page 9.

Part No.	Name of Part	Number Required
3	Floor Legs	2
4	Front Lead Screw Bracket	1
5	Rear Lead Screw Bracket	1
6	Bench Legs (For 9" and 11" Bench Lathes)	2
35	Standard Change Gear Collar	1
39	Lead Screw Thrust Collar	1
40*	Large Face Plate	1
41*	Small Face Plate	1
125	Steady Rest Base	1
126	Steady Rest Top	1
127	Steady Rest Clamp	1
128	Steady Rest Jaws	2
129	Steady Rest Hinge Pin	1
130	Follower Rest	1
131	Follower Rest Jaw	1-2
144	Tool Tray for Standard Change Gear Lathe	1
209	Tool Post Block	1
217*	Steady Rest Lock Bolt	1
233*	Tool Post Screw	1
250	Tool Post	1
250-A	Tool Post Assembled	1
251	Tool Post Ring	1
252	Tool Post Wedge	1
253	Tool Post Wrench	1
275*	Rack	1
300*	Lead Screw	1

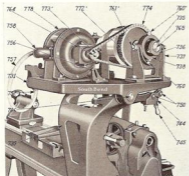
Countershaft Parts



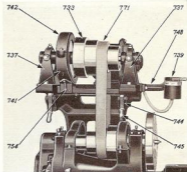
Part No.	Name of Part	Number Required
100	Countershaft Pulley	2
101	Countershaft Spider	2
102	Countershaft Friction Finger	2
103	Countershaft Cone	2-4
104	Countershaft Collars	1
105	Countershaft Yoke Lever	1
106	Countershaft Box	1
107	Countershaft Hanger	1
108	Countershaft Shipper Nut	1
109	Countershaft Yoke Cone	1
243	Countershaft Ball Point Set Screw	1
261	Countershaft Shaft	1
262	Countershaft Shipper Rod	1
263	Countershaft Expansion Wedge	2
264	Countershaft Shipper Nut Washer	1
265	Countershaft Oil Hole Springs	2

*When Ordering Gears, Threaded Parts and Chuck Backs see page 12 where this subject is explained.

Silent Chain Motor Drive Unit Parts



End View of Silent Chain Motor Drive Unit Showing Location of Parts and Numbers



Front View of Silent Chain Motor Drive Unit Showing Location of Parts and Numbers

Parts illustrated above are listed below by name and number

Part No.	Name of Part	Number Required
730	Motor Drive Frame	1
731	Motor Drive Top Plate	1
733	Motor Drive Cone	1
735	Motor Drive Shaft Collar	2
736	Motor Drive Bearings	2
737	Motor Drive Bearing Standard	2
738	Motor Drive Bearing Pivot Ring	2
739	Motor Drive Switch	1
741	Motor Drive Chain Guard Case	1
742	Motor Drive Chain Guard Cover	1
744	Motor Drive Belt Adjusting Shoe	2
745	Motor Drive Belt Adjusting Lever	2
748	Switch Bracket	1
750	Belt Adjusting Lever Pins	4
752	Switch Conduit Bushing	1
754	Chain Guard Bracket	1

Part No.	Name of Part	Number Required
756	Chain Guard Bracket Foot	1
757	Flexible Conduit	1
758	Flexible Conduit Fitting	1
760*	Motor Drive Bearing Screws	4
761*	Motor Drive Pivot Ring Screws	4
764	Motor Pinion Key	1
765	Motor Drive Countershaft Shaft	1
766	Motor Drive Plate Shaft	1
771	Belt for Cone—Specify Width and Length	1
771-A	Belt Lacing—Specify Length	1
772*	Motor Drive Chain Gear	1
773*	Motor Drive Chain Pinion	1
774	Motor Drive Chain	1
778	Motor	1
1772	Adjusting Bushing for Frame	1



Self-Contained Motor Drive Unit with portion of Chain Guard cut away

Self-Contained Motor Drive Unit Parts

Parts are listed below by name and number

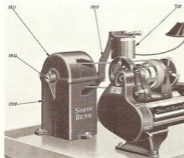
Part No.	Name of Part	Number Required
739	Switch	1
752	Conduit Bushing	1
757	Conduit—Specify Size and Length	1
758	Conduit Motor Fitting	1
771	Cone Belt—Specify Width and Length	1
774	Motor Drive Chain	1
778	Motor	1
1525	Motor Drive Frame	1
1526*	Motor Drive Chain Gear	1
1527*	Motor Drive Chain Pinion	1
1530	Motor Drive Cone Shaft	1
1531	Motor Drive Cone	1
1532	Motor Drive Switch Arm	1
1533	Motor Drive Cone Shaft Collar	1
1535	Motor Drive Chain Guard, Lower	1
1539	Motor Drive Chain Guard, Upper	1

*When Ordering Gears, Threaded Parts and Chuck Backs see page 12 where this subject is explained.

Horizontal Motor Drive Unit Parts



Phantom View of Unit

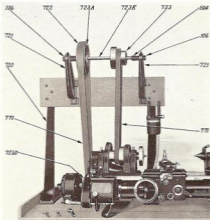


View of Horizontal Motor Drive Unit Assembly

Part No.	Name of Part	Number Required
733	Motor Drive Cone	1
739	Switch	1
771	Belts—Specify Width and Length	2
771-A	Lacing for Belts—Specify Length	2
1910	Motor Drive Frame Base	1
1911	Motor Drive Frame Top	1

Part No.	Name of Part	Number Required
1912	Motor Drive Pulley	1
1913	Motor Drive Shaft	1
1914	Motor Pulley	1
1915	Motor Drive Switch Arm	1
1916	Motor Drive Shaft Collar	1

Simplex Motor Drive Unit Parts



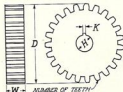
View of Simplex Motor Drive Unit Assembly

194	Countershaft Collars	2
196	Countershaft Boxes	2
720	Motor Drive Standards	2
721	Motor Drive Hangers	2
722	Motor Drive Pulley	1

723-A	Pulley Balance Weight	1
723-D	Motor Pulley	1
723-K	Countershaft Shaft	1
733	Countershaft Cone	1
771	Belts—Specify Width and Length	2

Important Information On Ordering

How to Order Gears



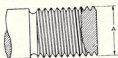
The illustration above shows two views of a gear blank with parts lettered for use when indicating specifications on your order.

When ordering gears such as Spindle Reverse Gear, Cross Feed Gear or Rack Pinion fill in on the order blank all parts of the tabulation on ordering gears, listing the specifications of each gear wanted as noted below. See drawing at left for diagram illustrating specifications required in the tabulation. Also give all other information requested on the order blank.

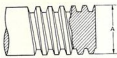
Information To Be Given When Ordering Gears

Name and Number of Part
Serial Number of Lathe
Quantity Wanted
Number of Teeth

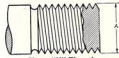
Diameter "D" in Inches
Width "W" in Inches
Keyway "K" in Inches
Hole "H" in Inches



U. S. Standard Thread



Acme Thread



Sharp "V" Thread

How to Order Threaded Parts

When ordering threaded parts such as Cross Feed Nut, Lead Screw Half-Nut or Cross Feed Screw, fill in on the order blank all parts of the tabulation on ordering threaded parts, listing the specifications of each threaded part wanted, as noted below. Specify on the order blank whether

thread is a right-hand or left-hand Acme, U. S. Standard or Sharp "V" type. These types of thread are illustrated above. "A" represents outside diameter of threads. In addition to the specifications below be sure to give all other information requested on order blank.

Information To Be Given When Ordering Threaded Parts

Name and Number of Part
Serial Number of Lathe
Quantity Wanted
Outside Diameter of Threads at "A"
in Inches

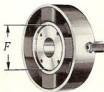
Number of Threads per Inch
State Kind of Thread:
Acme Thread
U. S. Standard Thread
Sharp "V" Thread } Right or Left Hand



Headstock Spindle Nose



Chuck Back Flange



Recess in Back of Chuck



Chuck-Back Fitted to Chuck

How to Order Chuck Backs

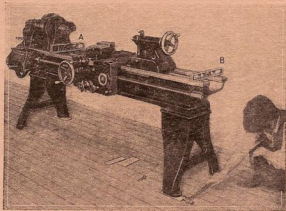
When ordering Chuck Backs for fitting chucks to the spindle nose of your lathe fill in on the order blank all parts of the tabulation on ordering chuck backs, listing the specifications noted below. See illustrations above for obtaining the specifications required. Also give all other information requested on order blank.

The Chuck Back you order will be bored, faced and threaded to fit the spindle nose of your lathe. Sufficient stock is left on the diameter of the flange so that it can be machined to fit the recess in the back of your chuck.

Information To Be Given When Ordering Chuck Backs

Serial Number of Lathe
Outside Diameter of Spindle Nose at "A"
in Inches
Number of Threads per Inch at "B"
Length of Spindle Nose at "D" in Inches

Rough Diameter of Chuck-Back Flange at "E" in Inches
Diameter of Recess in Back of Chuck at "F" in Inches
Exact over-all length of spindle



The illustration above shows the proper method of leveling a lathe

Importance of Leveling the Lathe

The Lathe Must Be Level To Do Accurate Work

Before operating the lathe or any other machine tool make sure it is level when fastening it to the floor. If the lathe is not level in every direction it will be impossible to turn out work accurately. Level the lathe carefully and the quality and quantity of the additional work produced will pay a hundred times for the time spent in leveling.

Solid Foundation Preferred

The lathe, if possible, should be set on a concrete foundation, however, it may be set on a wood floor that is strong and substantial. If the lathe is to be fastened to a wood floor in an old building then the floor should be securely braced from below to prevent sagging because it is difficult to keep a lathe level on a wood floor in an old building for obvious reasons.

How to Level the Lathe

When the lathe has been placed in the position where it is to be operated, and aligned properly with the lineshaft (if countershaft driven), place the level across the bed in front of the headstock and shim under the leg in the direction indicated by the level. Next place the level across the bed at the tailstock end of the lathe and shim under the leg accordingly. Now place the level on the bed lengthwise on the top of the V-way and the Flat-way, both at the headstock end and the tailstock end of the bed. When the lathe bed is level in every direction fasten the lathe to the floor or foundation.

After the lathe is fastened securely to the floor, again test it with a level as before, to make sure

that the lathe when fastened is level in every direction on the horizontal plane. If it is not, release the legs and shim accordingly.

The Proper Shims for Leveling

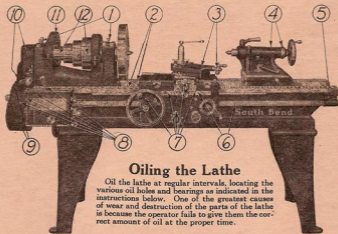
Pieces of sheet metal or slightly tapered steel serve to make the best shims, but shingles or wooden shims may also be used, and sometimes cardboard or paper. When the lathe is clamped down in position then take a cold chisel and cut the shims neatly around the foot of the leg so that the job will look neat.

The Kind of Level to Use

When leveling the lathe use a graduated machinist's level as it is the most accurate for this work. If a level of this kind is not available then you have to do the best you can with the level at hand. The level should be long enough to reach across the full width of the lathe bed. The accuracy of the level may be checked by recording the location of the bubble when the level is in one position then turning it end for end in the same position and noting the location of the bubble.

The Accuracy of the Lathe Depends Upon Correct Leveling

Before the lathe is shipped from our factory it is set up and carefully leveled, after which it is tested for accuracy with precision instruments. A record of these tests is kept in our office. Therefore, if you intend to get the utmost efficiency out of the lathe, it is necessary that it be level in every way. If the lathe is level it will maintain the same accuracy it had when being tested in our factory.



Oiling the Lathe

Oil the lathe at regular intervals, locating the various oil holes and bearings as indicated in the instructions below. One of the greatest causes of wear and destruction of the parts of the lathe is because the operator fails to give them the correct amount of oil at the proper time.

Instructions for Oiling Lathe Units

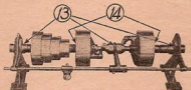
1. Headstock Spindle Bearings.....Fill the oil cups every hour the first 100 hours, twice a day thereafter.
2. Carriage "V" Ways and Dovetails..Keep well oiled and wipe clean frequently.
3. Compound Rest Screw.....Remove the two small screws in the Compound Rest Top to oil, once a day.
4. Tailstock Screw.....Fill both oil holes once a day.
5. Lead Screw Bearings.....Fill the oil cup once a day.
6. Lead Screw and Half Nuts.....Oil every hour when in use.
7. Apron Bearings.....Fill all oil holes once a day.
8. Gear Box Bearings.....Fill all oil holes once a day. Place tumbler in extreme left hole when oiling.
9. Primary Gears.....Fill oil holes once a day.
10. Reverse Lever.....Oil studs and fill oiler once a day.
11. Back Gears.....Remove oil plug and fill reservoir daily.
12. Spindle Cone Pulley.....Fill oil reservoir twice a day first week. Once a day thereafter.

Keep the Lead Screw Clean and Well Oiled and Its Accuracy Will Be Preserved

Oiling the Countershaft

The Countershaft is just as important as any other part of the lathe. Oil it every day as follows:

13. Countershaft Bearings.....Oil every day.
14. Friction Clutch Pulleys.....Fill oil cups twice daily first week, once a day thereafter.



South Bend Lathe Works

419 E. Madison St., South Bend, Ind., U. S. A.